Co-Morbidity and Depression among the Anxiety Disorders

Issues in Diagnosis and Classification

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One hundred twenty-six patients presenting at an anxiety disorders research clinic were administered a structured interview. Diagnoses were made on the basis of DSM-III criteria but without regard to current exclusionary systems within DSM-III. Rather, clinicians decided whether anxiety and depressive symptoms that met DSM-III criteria for additional diagnoses were associated features of the presenting problem or represented an independent coexisting complication. Diagnoses and accompanying psychometric data delineated groups of patients with somewhat different clinical and psychometric characteristics. But additional anxiety and depressive diagnoses were required in a number of cases. Anxiety states almost always required additional diagnoses whereas for the phobic disorders additional diagnoses occurred less frequently. Simple and social phobia were the most frequent additional diagnoses, but depression was more strongly associated with some anxiety disorders, specifically obsessive-compulsive disorder. In view of the treatment implications of co-morbidity, establishing the functional relationships among anxiety symptoms without regard to exclusionary systems would seem important in both clinical and research settings.

There is considerable overlap in the symptomatology of the various anxiety disorders described in DSM-III (American Psychiatric Association, 1980). This reflects the intent of DSM-III as well as other aspiring classification systems to base broad categories on shared descriptive features (e.g., anxiety disorders, affective disorders). In addition to shared phenomenological and physiological aspects of anxiety, all categories include varying degrees of situationally induced anxiety and occasional avoidance. From this point of view it is not surprising if individuals presenting with anxiety might meet the criteria for more than one anxiety disorder (Marks, 1969). But diagnostic categories should include defining features which permit differentiation among the categories, and (preferably) show some differences in either etiology, course, prognosis, choice of treatment, or all of the above (Kendall, 1975).

In order to choose among related diagnoses when

decisions are difficult, explict or implicit hierarchies of disorders are introduced into classification systems. Associated with these hierarchies are often complex exclusionary rules reflecting the assumptions of the hierarchies. For some DSM-III disorders, a diagnosis is excluded if, in the clinician's judgment, its symptoms are "due to" a coexisting disorder which occupies a higher position in the hierarchy. Thus, a diagnosis of simple phobia may be excluded by a number of disorders, including major depression and obsessive-compulsive disorder. Generalized anxiety disorder may be excluded by any other anxiety disorder as well as by major depression. More generally, any of the anxiety disorders may be excluded by major depression. The primary difficulty in establishing these hierarchical relationships among various disorders for any given patient is that DSM-III provides no guidelines for determining when a particular disorder is "due to" another. Excellent discussions of the origin and nature of hierarchical exclusionary systems within diagnostic categories are provided by Kendall (1975), Surtees and Kendall (1979), Sturt (1981), and Boyd et al. (1984).

Below the level of organic disorders, few of these exclusionary systems in their totality have any empirical support (Surtees and Kendall, 1979). Their most

important function is to allow clinicians to assign only one diagnosis. However, Sturt (1981) makes a convincing argument, based on an analysis of data from the Present State Examination, that even exclusionary systems with some face validity may simply reflect the tendency of every symptom to show a highly significant association with the total symptom score. A recent study by Boyd *et al.* (1984) indicates that when diagnoses are applied without exclusionary restrictions, individuals who meet the basic criteria for any one DSM-III disorder are likely to meet the criteria for one or more additional diagnoses. Such findings suggest that arbitrary exclusionary systems may obscure true relationships among disorders or syndromes.

On the other hand, the results of the Boyd *et al.* study also indicate that the practice of simply listing all of the diagnoses for which a patient meets the basic criteria would also obscure existing relationships among syndromes, since such a procedure makes no provision for recording these relationships. That is, in some cases symptoms fitting the criteria for two different diagnoses might either be part of the same problem or not. For example, in a severe obsessive-compulsive with washing rituals, fear of dirt would not be a separate simple phobia. But a fear of heights might be, particularly if it had a different time of onset or otherwise had nothing to do with feelings of contamination which are an integral part of many obsessive-compulsive syndromes. Automatically including every "simple phobia" that happens to be present in an obsessive-compulsive would be as misleading as automatically excluding every simple phobia. Thus, the issue becomes one of carefully delineating the exclusionary guidelines used in a diagnostic system rather than eliminating hierarchical or exclusionary assumptions altogether.

Recognizing these difficulties, Spitzer and Williams (1983) have critically evaluated some of the assumptions underlying the hierarchical organization of DSM-III anxiety disorders. For example, they note that DSM-III currently excludes a diagnosis of agoraphobia in the presence of obsessive-compulsive disorder because individuals with the latter disorder are often fearful of going out of the house alone. This exclusionary rule fails to recognize that the agoraphobic and obsessive-compulsive may be housebound for different reasons. In agoraphobia, fear of leaving the house is mediated by anticipation of panic attack or sudden incapacitation; such fears are not a part of the obsessive-compulsive picture. According to their proposed revised decision rules, agoraphobia could be assigned in addition to obsessive-compulsive disorder. A central element in this revision is the distinction between "associated features" of a disorder and "co-

existing complications" of a disorder. An associated feature refers to a symptom which is a typical aspect of the clinical picture of a more pervasive disorder. In the presence of the more pervasive disorder, the associated symptomatology would not warrant a separate diagnosis. For example, as noted above, phobic avoidance of dirt is a typical feature in patients with obsessive thoughts about contamination, so a separate diagnosis of simple phobia is not warranted in such cases of obsessive-compulsive disorder. Similarly, in our work, we have found that fear and avoidance of heights or enclosed places, sufficient to meet the criteria for a simple phobia, are often reported by agoraphobics. These symptoms usually prove to be an associated part of the agoraphobic symptomatology because these situations represent the unavailability of an escape route in case of panic. That is, a fear of heights is "functionally related" to the agoraphobic syndrome.

Spitzer and Williams (1983) are less clear in their definition of a coexisting complication. The examples they use suggest that a symptom or symptom cluster which is concurrent with the symptoms of a more pervasive disorder, but which is not a typical feature of the pervasive disorder, would be considered a coexisting complication and would warrant separate diagnosis. They argue that the presence of such symptoms may delineate meaningful diagnostic entities and have implications for treatment, as in cases of mixed depressive/anxiety symptomatology. This conclusion is supported by the work of Leckman *et al.* (1983), demonstrating that a history of panic attacks in depressives was associated with increased family prevalence of depression, anxiety disorders, and alcoholism. That is, panic is not functionally related to or an integral part of depression. It seems to represent a coexisting complication with different implications for familial aggregation and, perhaps, etiology and treatment. In such cases, it is important to be able to assign joint diagnoses, such as major depression and panic disorder, or major depression and generalized anxiety disorder. Since fixed hierarchies and automatic exclusionary rules cannot reflect this variety, we believe that decisions about the assignment of diagnoses must be made on a case-by-case basis, by considering the functional relationships among various symptom clusters in a given patient.

With increasing complexity and specificity of diagnostic systems such as DSM-III, the use of structured interview protocols has been recommended to ensure uniform information gathering and diagnostic reliability (Mezzich, 1984). Indeed, structured interviews administered by clinicians for other disorders, such as the Schedule for Affective Disorders and Schizophrenia, have proven very useful (Endicott and Spitzer,

1978, 1979). To provide the same diagnostic precision within the anxiety disorders, we developed the Anxiety Disorders Interview Schedule (ADIS)[3] (DiNardo, et al., 1982).[4] This structured interview protocol is designed to permit differential diagnosis among the anxiety disorders as well as to screen for psychotic symptoms, substance abuse, and affective disorders. Included in the body of the interview are the Hamilton Anxiety Scale (Hamilton, 1959) and the Hamilton Depression Scale (Hamilton, 1969), with items grouped according to content to permit simultaneous rating of anxious and depressive symptoms.

In an initial reliability study,[4] 60 consecutive admissions to the Phobia and Anxiety Disorders Clinic were evaluated according to the diagnostic guidelines described above; the Kappa coefficients were good for most categories and for major depression (DiNardo et al., 1982). Updated Kappa coefficients with 125 consecutive admissions (Barlow, 1983, 1985) reveal excellent agreement for all phobic disorders and obsessive-compulsive disorder (with the exception of simple phobia) and good agreement for other disorders.

With the establishment of satisfactory reliability in most cases and availability of a tool for differentiating DSM-III anxiety disorders, investigations of the descriptive, etiological, and predictive validity of the categories can begin. An initial step in this investigation is to examine groups of patients with diagnosed anxiety disorders to determine the extent to which groups overlap or can be distinguished on the basis of various clinical characteristics. Currently, we are in the process of gathering clinical, behavioral, physiological, and psychometric data on a large group of anxiety disorder patients as well as relevant comparison groups. In this paper we present diagnostic and relevant psychometric data on co-morbidity of the various DSM-III anxiety disorder categories and depression without regard to exclusionary rules that were present in DSM-III but have been deleted in the proposed revision of DSM-III.[5]

Methods

One hundred twenty-six patients presenting at the Center for Stress and Anxiety Disorders for evaluation were administered the ADIS on separate occasions by two different staff members. The interviewers inde-

pendently arrived at primary diagnoses and any appropriate additional diagnoses and then discussed these decisions at a staff meeting, at which consensus was reached on any initial disagreements. Diagnoses were made on the basis of DSM-III criteria, except that clinicians were not required to exclude diagnoses based on the hierarchical structure of certain categories in DSM-III.

To achieve this goal as well as to ascertain functional relationships among disorders (that is, whether one disorder is an associated feature or a coexisting complication), we developed guidelines for assigning diagnoses. In employing these guidelines, the clinician makes the following decisions: 1) chooses all those diagnoses for which the patient meets the basic criteria; 2) chooses those diagnoses which can be excluded; and 3) of those diagnoses which are assigned, chooses which can be considered primary and which are additional diagnoses.

Decisions 2 and 3 are made on a case-by-case basis and include consideration of the temporal and functional relationship among the disorders as discussed above. Decision 3 will include the additional consideration of the relative severity or interference with functioning created by each syndrome.

To review: one diagnosis can be excluded by a second when its symptomatology is part of a broader cluster which can be represented by the second diagnosis. An obsessive-compulsive syndrome characterized by a fear of contamination would include phobic avoidance of dirt, so an additional diagnosis of simple phobia would not be assigned. Similarly, a fear of enclosed places or heights (more accurately, tall buildings) in patients with an agoraphobic syndrome may be mediated by a fear of not having a quick escape route in case of panic. Since fear of panic is a defining feature of agoraphobia, an additional diagnosis of simple phobia would not be made. It should be noted here that this particular decision is made not on the basis of the avoidance behavior per se, but on the reasons for the avoidance behavior. This is an example of what is considered a functional relationship between two symptoms.

On the other hand, the patient may meet the basic criteria for two or more disorders which, because of different times of onset and/or different antecedents, can be considered independent. In such cases, both diagnoses are assigned. For example, one client reported long-standing problems with anxiety, worry, and tension, and also reported a more recent fear of blood which was precipitated when he witnessed a particularly gruesome suicide. This patient met the criteria for generalized anxiety disorder (GAD), and the blood fear was sufficiently severe and independent

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[3] Copies of the ADIS and scoring and computer coding instructions are available upon request.

[4] Dinardo, P. A., O'Brien, G. T., Barlow, D. H. et al. Anxiety Disorders Interview Schedule (ADIS), 1982. Available from Phobia and Anxiety Disorders Clinic, 1535 Western Avenue, Albany, New York 12222.

[5] Spitzer, R. L., and Williams, J. B. W. Proposed revisions to DSM-III anxiety disorder categories. January 1985 draft.

of the general anxiety to warrant an additional diagnosis of simple phobia.

In the same vein, generalized anxiety disorder can be meaningfully assigned as an independent diagnosis in the presence of other anxiety disorder diagnoses. This should be done when the patient reports chronic anxiety symptomatology which predates the onset of phobic or panic symptoms and/or when the focus of apprehensive expectation is on multiple situations in addition to phobic or panic symptomatology. This modification to DSM-III guidelines based partly on recent data (Barlow, 1985; Barlow et al., 1986) has also been incorporated into the proposed revision of DSM-III.[5]

If two or more such independent diagnoses are assigned, the disorder which is responsible for greater interference with functioning is given primary status. In the case of GAD and simple phobia above, the blood and injury fear was sufficiently severe to warrant a separate diagnosis, but the chronic anxiety was interfering with a number of areas of functioning, so GAD was assigned as the primary diagnosis. It should be noted here that the more long-standing disorder is not automatically assigned primary status.

Agoraphobia, panic disorder, and obsessive-compulsive disorder are often associated with significant depressive symptomatology. In a number of cases, an examination of the temporal and functional relationship between the symptoms reveals that the depressive symptoms came on after the anxiety symptoms and in response to the restrictions imposed by the anxiety and avoidance. While the depressive symptoms are functionally related to the anxiety symptoms, they are not simply a part of the defining characteristics or an associated feature of the anxiety symptomatology and would warrant separate diagnosis. In such cases, the anxiety disorder is given primary status, with the depressive diagnosis as an additional diagnosis.

At weekly staff meetings, interviewers presented their information and their diagnoses (DiNardo et al., 1982). Information from interviews was considered in arriving at consensus diagnoses in the event of initial disagreement on primary diagnoses. Of 126 patients who were administered double interviews, 108 who received consensus diagnoses of one of the anxiety disorders or major depression are included in this sample. Table 1 presents the number of consensus diagnoses in each category.

In combining interview information, ratings from both interviewers were averaged, coded, and entered into a computer data file. At the time of intake, all patients also filled out a battery of self-report instruments which assess a variety of anxiety and depressive symptomatology. In addition to the Hamilton scales embedded in the ADIS, other questionnaires administered included the State Trait Anxiety Inventory

TABLE 1
Number of Patients in Each Diagnostic Category

Diagnosis	N
Agoraphobia with panic	41
Social phobia	19
Simple phobia	7
Panic disorder	17
Generalized anxiety disorder	12
Obsessive-compulsive disorder	6
Major depression	6
Total	108

(STAI) (Spielberger et al., 1970), the Middlesex (Crown and Crisp, 1966), Fear Questionnaire (Marks amd Mathews, 1978), the Cognitive and Somatic Anxiety Questionnaire (CSAQ) (Spielberger et al., 1970), and the Beck Depression Inventory (Beck et al., 1961).

Results

Table 2 shows the distribution of additional diagnoses among the anxiety disorders. An inspection of the table reveals that in a substantial number of cases, one or more additional diagnoses were assigned and that the number of additional diagnoses is related to the primary diagnosis. Differences in diagnostic categories having none vs. one or more additional diagnoses are statistically significant ($\chi^2[6] = 18.64$, $p < .005$). In approximately one half of the cases of simple phobia, social phobia, and agoraphobia, no additional diagnosis was assigned. The proportion of panic disorder, GAD, and obsessive-compulsive disorder cases in which no additional diagnoses were assigned is significantly smaller ($\chi^2[1] = 14.23$, $p < .001$). For these three primary diagnoses, a large percentage of cases were assigned additional diagnoses. Almost two thirds of the panic disorder cases received one additional diagnosis, and one half of the obsessive-compulsive cases received two additional diagnoses.

Table 3 shows the distribution of specific additional diagnoses among the anxiety disorder cases. The first number of each entry indicates the total number of cases in which the particular additional diagnosis was assigned, by either or both raters before the staff meeting. The parenthetical figure indicates the number of those cases in which the diagnosis was independently assigned by both raters before the staff meeting.

The most frequently occurring additional diagnoses are social phobia, simple phobia, dysthymic disorder, and major depression. These diagnoses account for 65% of the total assigned additional diagnoses, with simple phobia accounting for 20%, social phobia and dysthymic disorder 17% each, and major depression 11%. Of the anxiety disorders, panic disorder, GAD, and agoraphobia rarely were used as additional diagnoses.

TABLE 2
Number of Anxiety Disorder Cases in Which Additional Diagnoses Were Assigned

Additional Diagnoses	Primary Diagnosis						
	Agoraphobia	Social phobia	Simple phobia	Panic disorder	GAD	Obsessive-compulsive	Major depression
None	20 (49%)	10 (53%)	3 (43%)	2 (12%)	2 (17%)	0	0
One	8 (20%)	7 (37%)	2 (29%)	11 (65%)	5 (42%)	3 (50%)	3 (50%)
Two	9 (22%)	2 (11%)	2 (29%)	3 (18%)	3 (25%)	3 (50%)	2 (33%)
Three or more	4 (1%)	0	0	1 (6%)	2 (16%)	0	1 (17%)

TABLE 3
Additional Diagnoses among Anxiety Disorder Cases

Additional Diagnoses	Primary Diagnosis (N)						
	Agoraphobia (41)	Social phobia (19)	Simple phobia (7)	Panic disorder (17)	GAD (12)	Obsessive-compulsive (6)	Major depression (6)
Agoraphobia		0	1 (1)[a]	0	2 (2)	1 (1)	2 (0)
Social phobia	7 (5)		2 (2)	6 (4)	4 (2)	0	0
Simple phobia	7 (4)	1 (1)		5 (4)	5 (3)	1 (1)	3 (3)
Panic disorder	0	0	1 (1)		0	1 (0)	1 (0)
GAD	1 (0)	1 (1)	0	0		1 (1)	1 (0)
Obsessive-compulsive	3 (1)	2 (2)	0	1 (1)	0		1 (1)
Major affective disorder	6 (4)	1 (1)	0	2 (2)	0	4 (4)	
Dysthymic disorder	10 (3)	3 (2)	0	4 (1)	2 (0)	0	0
Somatization disorder	0	0	0	1 (1)	0	0	0
Axis III	2 (2)	1 (1)	1 (1)	0	4 (1)	0	1 (1)
Alcohol abuse	0	1 (1)	0	0	0	0	1 (1)
Conversion	0	0	0	0	0	1 (1)	0
Cyclothymic	0	1 (1)	0	0	0	0	0
Axis II	2 (1)	0	1 (1)	0	0	0	0

[a] Additional diagnoses, assigned independently by both raters before consensus was determined at a staff meeting, appear in parentheses.

Of particular interest is the frequency with which a depressive diagnosis (either major depression or dysthymic disorder) appears as an additional diagnosis among the anxiety disorders. This occurs in 16 (39%) of the 41 cases of agoraphobia, four (19%) of the 19 cases of social phobia, six (35%) of the 17 cases of panic disorder, two (17%) of the 12 cases of GAD, four (67%) of the six cases of obsessive-compulsive disorder, and none of the cases of simple phobia. All of the depressive diagnoses among the obsessive-compulsive cases were major depression, and all of those diagnoses were arrived at independently.

Mean Hamilton anxiety and depression ratings for the diagnostic groups are shown in Table 4. One-way analyses of variance calculated on the ratings revealed significant differences among the means for the diagnostic groups. Duncan's multiple range tests were conducted to determine which of the differences were significant.

An inspection of the Hamilton anxiety ratings shows that major depression and agoraphobia tend to have the highest anxiety ratings, and social and simple phobia the lowest, although the Duncan's tests re- vealed considerable overlap among the group means on the Hamilton anxiety ratings. Specifically, simple phobia has the lowest mean anxiety score, significantly lower than agoraphobia, GAD, obsessive-compulsive disorder, and major depression, but not significantly lower than panic disorder or social phobia. Social phobia, in turn, has a significantly lower mean than agoraphobia and major depression. The difference between major depression and agoraphobia and obsessive-compulsive disorder is not significant due, in part, to the substantial overlap between the Hamilton Anxiety and Depression Scales. Agoraphobia is significantly higher than social phobia and simple phobia, but not panic disorder, GAD, or obsessive-compulsive disorder.

The pattern of Hamilton depression ratings is more clear-cut. Major depression and obsessive-compulsive disorder have significantly higher ratings than all of the other diagnostic groups. There are no significant differences among agoraphobia, social phobia, simple phobia, panic disorder, and GAD.

Mean scores on the various self-report measures of the diagnostic groups are shown in Table 5. Separate

TABLE 4
Hamilton Scale Scores* and Severity of the Primary Diagnosis** for the Diagnostic Groups

	Diagnosis						
	Agoraphobia	Social phobia	Simple phobia	Panic disorder	GAD	Obsessive-compulsive	Major depression
Anxiety	$25.7^{c,d}$	$10.7^{a,b}$	17.4^{a}	$22.4^{a,b,c}$	$23.3^{b,c}$	$24.2^{b,c,d}$	29.8^{d}
Depression	16.4^{a}	12.8^{a}	13.7^{a}	13.8^{a}	12.6^{a}	24.0^{b}	26.8^{b}
Mean severity	5.63^{b}	5.63^{b}	$5.00^{a,b}$	$5.18^{a,b}$	4.50^{a}	6.00^{b}	6.17^{b}

* Means with similar superscripts are not significantly different.
** The mean of two clinicians' judgments of severity on a 0- to 8-point scale where 2 = mild and 8 = very severe.

TABLE 5
Mean Scores* on Questionnaires by Diagnostic Category

Test	Agoraphobia	Social Phobia	Simple Phobia	Panic Disorder	GAD	Obsessive-Compulsive	Major Depression
Middlesex							
Anxiety	11.67^{b}	$9.94^{a,b}$	7.40^{a}	11.60^{b}	$10.33^{a,b}$	12.00^{b}	$10.83^{a,b}$
Obsessive	8.28	6.94	6.40	7.73	7.58	11.60	9.67
Depressive	6.72	7.41	5.20	6.13	5.41	8.20	10.67
Phobic	9.44^{c}	4.06^{a}	$4.80^{a,b}$	$6.87^{b,c}$	$5.42^{a,b}$	$4.80^{b,a}$	$6.50^{a,b,c}$
Somatic	$8.72^{a,b}$	5.76^{a}	5.00^{a}	$7.00^{a,b}$	$6.92^{a,b}$	$7.60^{a,b}$	$10.67^{?}$
Hysteric	6.03	5.41	3.80	4.80	6.58	8.60	4.50
Fear Questionnaire							
Agoraphobia	22.62^{b}	5.94^{a}	9.43^{a}	9.80^{a}	6.00^{a}	10.17^{a}	8.67^{a}
Blood-injury	13.92^{c}	5.33^{d}	$8.14^{a,b,c}$	$9.07^{a,b,c}$	$7.25^{a,b}$	$10.17^{a,b,c}$	$12.67^{b,c}$
Social	$14.96^{a,b}$	22.56^{c}	$13.00^{a,b}$	$13.20^{a,b}$	9.92^{a}	$21.33^{b,c}$	$13.00^{a,b}$
Total score	49.41^{b}	33.56^{a}	30.57^{a}	31.40^{a}	23.17^{a}	$41.67^{a,b}$	$34.33^{a,b}$
STAI							
State	48.65^{a}	49.17^{a}	41.83^{a}	46.50^{a}	44.08^{a}	$56.80^{a,b}$	65.20^{b}
Trait	$53.06^{a,b}$	$54.13^{a,b}$	43.17^{a}	$51.29^{a,b}$	$50.60^{a,b}$	$59.50^{b,c}$	68.60^{c}
CSAQ							
Cognitive	20.22	20.18	18.33	22.07	19.82	26.00	27.00
Somatic	$21.63^{a,b}$	$18.59^{a,b}$	16.33^{a}	$22.86^{a,b}$	$17.36^{a,b}$	$22.40^{a,b}$	25.80^{b}
Total	$41.78^{a,b,c}$	$38.76^{a,b}$	33.67^{a}	$44.86^{a,b,c}$	$37.18^{a,b}$	$48.40^{b,c}$	52.80^{c}
Beck Depression Inventory	$16.19^{a,b}$	11.94^{a}	$15.00^{a,b}$	11.43^{a}	12.75^{a}	$23.50^{b,c}$	28.83^{c}

* Means with similar superscripts are not significantly different.

one-way analyses of variance were calculated on total scores and subscale scores, and where these analyses yielded significant *F*-values, Duncan's Multiple Range tests were conducted to determine which of the groups had significantly different mean scores.

An inspection of the table reveals a substantial number of significant F-values, although the Duncan's tests show that there is considerable overlap among the groups on the self-report means.

On several scales which measure global anxiety and depressive symptomatology (STAI state and trait, Beck Depression Inventory), major depression and obsessive-compulsive disorder show the highest mean scores. On all three of these scales, major depression is significantly higher than all of the other groups except obsessive-compulsive disorder, while obsessive-compulsive disorder consistently overlaps with agoraphobia. Simple phobics have the lowest mean scores on scales measuring generalized anxiety (Middlesex anxiety, state and trait subscales of the STAI, CSAQ). This is consistent with scores on the Hamilton Anxiety Scale.

Somewhat sharper differences among the anxiety disorder groups emerged on scales which measure specific aspects of fear and anxiety symptomatology. The mean score on the agoraphobia subscale of the Fear Questionnaire is significantly higher for the agoraphobia group than for any other group, and there are no significant differences among the other diagnostic groups on this subscale. While the social phobia group has the highest mean score on the social phobia subscale of the Fear Questionnaire, the mean for this group is not significantly different from the mean for the obsessive-compulsive group. There appear to be no clear differences among the groups on scales which measure the cognitive and somatic aspects of anxiety (CSAQ cognitive and somatic, Middlesex somatic).

Discussion

The results of this study, when considered together with the findings of DiNardo *et al.* (1982) and Barlow (1985), indicate that interviewers can reliably discrim-

inate among the DSM-III anxiety disorder categories and that the categories do delineate groups of patients with somewhat different clinical and psychometric characteristics. But the frequency of additional diagnoses indicates that in a large number of cases, clinicians decided it was necessary to assign an additional diagnosis to complete the clinical picture. Because our clinicians were not required to follow the current exclusionary rules included in DSM-III, these diagnoses reflect instances of clinically significant disorders which the clinician considered to be independent of or a coexisting complication of the primary disorder.

This is not a particularly surprising finding. Indeed, almost every study examining this phenomenon has observed marked overlap among clinical features in various mental disorders (Masserman and Carmichael, 1938; Nathan, 1967; Kendall, 1975; Kendall and Butcher, 1982; Sheehan and Sheehan, 1982). Since all nonorganic categories are classified by presenting clinical features rather than etiology, substantial overlap should be expected. The question remains, should researchers and clinicians continue to act as if diagnostic categories were actual "entities" by choosing òne category and excluding others, or should they attend more closely to presenting coexisting problems and the overall pattern of psychopathology?

These data clearly support the basic principles which underlie Spitzer and Williams' (1983) proposed revisions to DSM-III that eliminate most hierarchical exclusionary rules and rely on an examination of functional relations among symptoms, thereby providing a more complete picture of presenting psychopathology. But the detailed questioning and clinical judgment required to gather this type of information and arrive at a differential diagnosis are difficult to incorporate into a highly structured computer-scored protocol. Indeed, skilled clinical judgment in the context of a semistructured interview such as the ADIS seems necessary as also suggested by Spitzer (1984).

The general pattern of distribution of additional diagnoses is particularly interesting. Among the anxiety disorders, simple and social phobia are the most frequent additional diagnoses. That is, these problems were seen as independent syndromes which coexisted with the primary disorder.

Obviously, these additional diagnoses may have important treatment implications. For example, an agoraphobic in one of our groups also presented with a distinct blood and injury phobia which would be categorized as a simple phobia. This complicated treatment by exposure-based procedures. When confronted with a specifically phobic object such as a dead squirrel in the road during practice sessions, the patient experienced the bradycardia and hypotension which is paradoxically characteristic of a blood and

injury phobic (Connolly et al., 1976; Yule and Fernando, 1980; Ost et al., 1984b). Occasionally the patient would faint, which agoraphobics, of course, almost never do. In this case the specific phobia had to be treated before substantial progress could be made with the agoraphobia.

In this context, a functional analysis of the "cues" for panic is critical. As DSM-III notes, panic attacks may be consistently cued, in which case a diagnosis of simple or social phobia may be appropriate, or the cues may be "unpredictable," in which case agoraphobia or panic disorder is indicated. A careful search for cues to panic may have important implications in view of the patterning of panics across diagnostic categories (Barlow et al., 1985b).

It is also interesting to note that the anxiety states almost always have additional diagnoses. In the case of panic disorder and GAD the majority of these additional diagnoses are social or simple phobias. In the case of obsessive-compulsive disorder, four of the six cases had consensus additional diagnoses of major depression. Clinicians will certainly want to consider the patterning of additional diagnoses in formulating treatment plans for panic disorder or GAD rather than assuming that these problems will disappear with resolution of the primary disorder. Particularly important is the presence or absence of depression in conjunction with obsessive-compulsive disorder since Foa and her associates (Foa et al., 1983) have demonstrated that obsessive-compulsives with depression will not respond nearly as well to psychological treatments as those without depression. Tyrer et al., (1983) have also noted important treatment implications related to the patterning of personality disorders among the anxiety disorders.

On the other hand, generalized anxiety disorder is very seldom assigned as an additional diagnosis, despite the fact that almost all of the anxiety disorders, except possibly simple phobia, have the four DSM-III features of generalized anxiety (motor tension, autonomic hyperactivity, apprehensive expectation and vigilance, and scanning) (Barlow, 1985). This is because GAD symptoms are almost always clearly associated features of another anxiety disorder rather than an independent disorder. In agoraphobia, for example, symptoms of GAD are focused on upcoming stressful situations where panic may occur and are commonly referred to as anticipatory anxiety. But the only difference seems to be in the focus of the apprehensive expectation. GAD may receive the status of an additional diagnosis, as it did in this study, when apprehensive expectation generalizes to a large number of unrelated situations and issues (Barlow, 1985; Barlow et al., 1986).

The relationship between anxiety and depression in

our study proved very interesting, as it always does. Naturally, all patients eventually receiving a primary diagnosis of depression initially presented at our clinic because of significant anxiety symptomatology. Thus, these patients, by definition, overlap with anxiety disorder categories. As noted above, our initial study (DiNardo *et al.*, 1982) demonstrated that our clinicians could agree on the assignment of depressive diagnoses as the primary diagnoses despite the fact that they were operating in an anxiety disorders clinic. This would indicate that, when presented with clinical pictures in which both anxiety and depressive symptoms were present, our clinicians were able to make reliable judgments regarding the set of symptoms they considered primary.

The skewed nature of our depressed population also provides a severe test of the discriminant validity of anxiety and depressive diagnostic categories. Despite the fact that depression is frequently a part of the clinical picture in anxiety disorders, particularly obsessive-compulsive disorder, and to a lesser extent agoraphobia and panic disorder, it seems that the anxiety disorders in general are characterized by less severe depressive symptomatology than major depression. Further analyses with a larger sample will reveal whether specific depressive symptoms such as those established in the Newcastle studies (Gurney *et al.*, 1972; Roth *et al.*, 1972), by discriminant function analyses, distinguish among depressed patients and patients with primary diagnoses of anxiety disorders. It is also worth noting, once again, the strong and often observed relationship between obsessive-compulsive disorder and major depression (Mavissakalian and Barlow, 1981) which is not as marked in either agoraphobia or panic disorder. While 16 of our 41 agoraphobic patients and six of the 17 panic disorder patients received an additional depressive diagnosis, four of the six cases of obsessive-compulsive disorder received an additional diagnosis of major depression.

In general, our skewed sample of major depression was associated with the highest degree of distress in both anxiety and depressive symptomatology as well as on quantified rating scales and self-report instruments. Obsessive-compulsives with accompanying major depression were nearly as severe. These findings support recent data indicating not only the independence of anxiety and depression but also the increased level of severity found when both of these disorders are present at the same time. Leckman *et al.* (1983) also found that somewhat different and generally more severe patterns of psychopathology aggregated in families of patients with both anxiety and depression compared to depressed patients alone. Finally, our clinicians often noted the presence of depressive symptoms among anxiety disorder patients who did not meet the criteria for major depression or dysthymic disorder. It is possible that an option of "with depressive features" would have diagnostic significance in the anxiety disorders. Considerably more work is needed on the relationship of these two disorders.

On a more basic level there remains the issue of whether classification should be categorical or dimensional. With the marked overlap in symptomatology it is tempting to consider more dimensional analyses for anxiety disorders. Specifically, the dimensions of distorted cognitive processes, somatic manifestations, and avoidance, whether cognitive or behavioral, seem to run through all anxiety disorders. These dimensions and evidence for their importance have been described elsewhere (Barlow, 1985) and it may be more useful and valid in the long run to describe anxiety-related problems in terms of these dimensions and their relationship to each other.

On the other hand, there seems to be increasing evidence, in our opinion, of the importance of identifying at least some of the clusters of symptoms specified in DSM-III anxiety disorder categories. If one can forgo the notion that these are distinct entities with single causes and no particular relation to other descriptive psychopathology, then identifying certain disorders seems more useful than a strictly dimensional analysis. For example, there is growing evidence for some discontinuities between panic disorder and generalized anxiety disorder (Barlow *et al.*, 1985a; Crowe *et al.*, 1983). The performance anxieties currently categorized under social phobia seem to have a particularly strong cognitive mediating process that may distinguish them from other phobias (Sarason, 1982; Beck and Barlow, 1984). Additional discontinuities between social phobia and agoraphobia have recently been reported (Aimes *et al.*, 1983). Blood and injury phobia is characterized by a different physiological response than other simple phobias (Ost *et al.*, 1984) and perhaps deserves its own category for this reason. The relationship of blood and injury fears to somatization disorder has yet to be explored. Finally, as noted above in the discussion of treatment implications, it is useful to know whether someone with obsessive-compulsive disorder is depressed as well as to know the functional relationship between the obsessive-compulsive features and the depression.

Gross quantifiable rating scales, such as the Hamilton Anxiety Scale (Hamilton, 1959), do not seem very useful in this regard since the items within this scale simply sample the broad range of features currently thought to be associated with anxiety in general and also contain many items relevant to depression. With the growing specificity of our treatment, both psychological (Barlow and Beck, 1984) and pharma-

cological (Zitrin et al., 1983), few implications can be gleaned from simply observing higher Hamilton scores. Questionnaires, such as the Fear Questionnaire, which examine for the specific categories more systematically, seem to provide somewhat better discrimination. Ascertaining scores on the CSAQ (Schwartz et al., 1978) is a step in the direction of attending to dimensions and there is some evidence that this may have treatment implications (Zitrin et al., 1983), although this evidence is preliminary and is within an existing diagnostic category of social phobia (Ost et al., 1984a).

Thus, these categories, while not qualifying in any sense as real entities (Kendall, 1975; Kendall and Butcher, 1982), seem at the present time to be useful concepts or constructs which emerge as "blips" on a general background of a varying mixture of anxious and depressed symptomatology. Tyrer (1984) has adequately described the somewhat confused state of the classification of anxiety disorders and has called for longitudinal studies to determine the patterns and relationships of these symptoms over time. This will be an important step. In the meantime, in view of the relatively good reliability of DSM-III anxiety disorder categories, a full description of these problems as they exist in each individual based on functional relationships, but without regard to arbitrary hierarchical exclusionary systems, seems an important step in both clinical and research settings.

Conclusions

A large group of patients with anxiety disorders were interviewed and decision rules were devised to ascertain the presence of all anxiety disorder categories as well as major depression in these patients. These decision rules did not include current exclusionary guidelines present in DSM-III, but ensured that only functionally independent diagnoses that might have etiological or treatment implications were listed. These decision rules, which are consistent with the proposed revisions to DSM-III, revealed that patients with a primary diagnosis of panic disorder or generalized anxiety disorder almost always required an additional anxiety or depressive diagnosis to complete the clinical picture. The most common additional diagnosis was a simple or a social phobia, although depressive diagnoses were also common, particularly in association with obsessive-compulsive disorder. Additional diagnoses were required less frequently in the phobic disorders.

Psychometric data indicated differential grouping of patients based on diagnostic category.

These data, along with other recent data indicating satisfactory reliability of the anxiety disorder cate-gories, suggest the importance of diagnoses for treatment and research. However, adequate treatment planning, as well as meaningful clinical research, requires the recognition that patients most often present with multiple diagnoses and that all independent diagnoses, without regard to diagnostic exclusionary systems, must be considered.

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